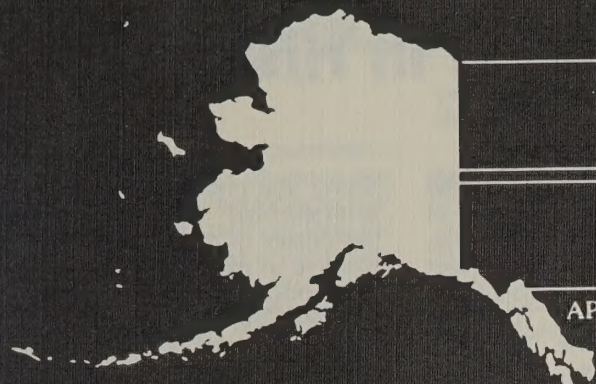




ALASKA PEOPLE

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In this issue:

High Tech In BLM



THE COVER:

This issue of "Alaska People" focuses on high technology in BLM. The cover is a computer-generated image of Mt. McKinley.

"Why Women In History?"

by Sharon Wilson

As the percentage of women who have become the sole breadwinner of the family continues to increase, women in the 1980s are no longer seeking jobs just to supplement the family income, according to Patty Kastelic, director of the Women's Center at the University of Alaska-Fairbanks. As education broadens their horizons, she sees more women seeking the fulfillment and economic security of a career, rather than settling for a job with low pay and little satisfaction.

Kastelic was guest speaker at the all employee's meeting held on March 11 to kick off Women's History Week. Her talk, "Why Women in History?" elaborated on the many accomplishments of women over the years that have not been recognized in history books. She encouraged the parents in the audience to read their schoolchildren's books and notice the differences from the books of a generation ago. The theme of women in history was echoed by displays placed in the lobbies of the Fairbanks District Office and Alaska Fire Service.

Kastelic also presented "Alaska Women's Oral History Collection," a videotape recently completed by the Learning Center at Anchorage Community College. Vignettes were shown of women throughout the history of Alaska, from the earliest days of settlement to more recent times.

Using still photos and early film clips interspersed with recent personal interviews of many of the women who still live in Alaska, the film related the first impressions of the women new to the Territory of Alaska. They recalled the people, the lifestyles, the hardships they endured in those early times, and their love of the land. Many Alaskan Native women also related their memories of the land as they were growing up and the changes they have seen over their lifetimes.

After her speech Kastelic joined the employees in a potluck buffet hosted by the FWP committee.

Other events of the week included a brown bag lunch talk by Kathy Barker, Chief, Electronics Systems of Alaska Fire Service; a variety of informative workshops hosted by the Army Community Service and other offices on Ft. Wainwright; and the showing of the two-part film "Rosie the Riveter" at lunch Thursday and Friday.

The Federal Women's Program is an extension of the Equal Opportunity Program, under the guidance of EEO Specialist Cliff Lignons. The nationally recognized Women's History Month, as designated by Congress, is an attempt to increase awareness of the contributions women make in the workforce today, the problems they encounter, and the history of the women who came before them.

ASO Celebrates Women's History Week

ASO celebrated Women's History Week, March 4-8. The theme was "The Majority in Search of Its Past." On March 4 Associate State Director Fred Wolf opened the ceremonies; Elaine Hultengren, Projects Director for Western Media Concepts Inc., talked about "why we celebrate women's history"; Dr. Arlene Kuhner, Instructor of English at Anchorage Community College, Sylvia Short, Attorney, and Shirley Staton of Save II High School did portraits of Susan B. Anthony, Elizabeth Cady Stanton, and Sojourner Truth; and "Calamity Jane" was performed by an all-female cast from Alaska Pacific University.

Guest speakers and movies addressed women's history topics throughout the week. On Thursday, March 7 a panel of six GS-13 men and women discussed their careers and how they reached their present positions.

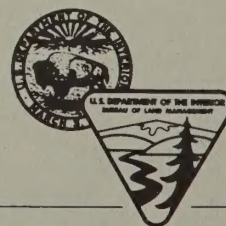


Elaine Hultengren talks to ASO BLMers about women in history.

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High Technology In BLM

by Don Howell

The Bureau of Land Management in Alaska uses many facets of space age technology in the daily performance of its mission. A visitor need not look far in any BLM office to find a computer terminal or other electronic device being used to help accomplish the organization's function. In this article BLM's computer technology will be divided into the following four categories: computer information systems, data acquisition, communications, and office automation.

Information Systems

The dominant information system is the Alaska Automated Land Record System which contains statewide land ownership data including state and Native selected lands, interrimly-conveyed or tentatively-approved lands, and patented lands. Mining claims and oil and gas lease information are also recorded in the system in addition to a wide variety of other types of cases. Detailed history and current status of more than 280,000 case files are available via 70 terminals.

An index of aerial photography is also accessible via terminal to provide information relative to photo coverage for any township, USGS quadrangle, or project. This data includes scale, photo type (black and white, color, false color infrared), and date of the photo, along with the roll and frame number so that copies of the photo can be obtained from the Branch of Photogrammetry.

Another system provides an index of maps showing geographic area, theme, scale, location, and other information. This system will eventually contain a reference to every BLM map in Alaska.

A digital mapping system, usually referred to as a geographic information system, operates on a Data General minicomputer. With this system information is digitized from maps and aerial photographs for storage, retrieval, update, and analysis within the map overlay and statistical software. The current thrust with this system is the collection of water body boundary data and the production of plats of survey, but the system can be used to collect and analyze all types of thematic map data.

Automated warehouse inventory control systems are in use by the Anchorage District Office and the Alaska Fire Service to efficiently manage their respective warehouse operations.

A status of survey system is used by the Division of Cadastral Survey to monitor the status of the various

surveying projects being conducted by the division.

A computerized fire qualifications system is used by the Alaska Fire Service to record the qualifications and training of fire service personnel. The system produces the "red card" issued to fire staff to indicate which tasks an individual is qualified to perform on a fire suppression crew.

Data Acquisition Systems

A wide range of highly-sophisticated systems are used for data acquisition by various offices within BLM Alaska.

Computer-based doppler positioning units are used by the Division of Cadastral Survey to establish precise coordinates for survey ground control. A unit is placed on the ground at a point for which coordinates are to be computed, and the unit is left in place for several hours. The unit receives and records signals from an orbiting satellite. Data from several orbital passes is processed by the computer to determine the exact position of the control point.

The Division of Cadastral Survey also uses an airborne computer system called an auto surveyor to conduct field surveys. The equipment, based on spacecraft guidance systems, is mounted in a helicopter and measures distance and direction as the aircraft moves along a survey line. The data is recorded on magnetic tape for subsequent processing by other computer systems.

One of the newest applications is the Initial Attack Management System being developed by the Alaska Fire Service. The system uses a network of radar stations to detect and locate lightning strikes. Weather data is obtained from remote automatic weather stations. When fully operational the system will contain land ownership, fuel type, and terrain data so that the dispatcher can quickly determine the probability of fire, the behavior of a fire, and whether to attack the fire or let it burn.

An analytical stereo plotter is used by the Branch of Photogrammetry, Division of Operations to obtain digital information from aerial photography. A pair of photos is placed in the machine which projects an image on a viewing screen. The operator, wearing polarizing glasses, sees three-dimensional relief in the image and can digitize elevation contours, water boundaries, and other thematic information from the photography. The entire process is computer-driven, and the acquired data is stored on disk or tape.

Special-purpose computer systems

are operated in the Branch of Photogrammetry to remove distortion from aerial photography. The distortion results from the tilting and tipping of the camera and aircraft. A process called rectification is used in flat-lying areas, and orthophotos are produced for mountainous areas.

The Branch of Photogrammetry also uses a computerized system for digital image analysis. This system enables the user to determine such features as landcover or vegetation type, elevation, slope angle, and aspect (whether the slope or hillside faces north, south, east, or west) from satellite imagery.

The Fairbanks District Office has used side-looking airborne radar systems to determine depths of frozen lakes from an aircraft. The information is used for purposes such as finding lakes suitable for winter airstrips, water supplies for drilling operations, and for indicating whether lake depth is sufficient to allow fish to survive beneath the ice.

Computer systems are used by the Division of Mineral Resources to produce stratigraphic maps from seismic information. The seismic data is obtained by creating shock waves on the earth's surface with explosives or by mechanical vibrators and measuring elapsed times to receive echos from the geologic formations beneath the surface. The resulting maps are used to predict the likelihood of oil and gas deposits in the area.

Electronic systems are used to measure tides automatically in remote areas. The systems record tide data and periodically transmit the data via satellite into a central computer. Tide data is virtually nonexistent for many parts of Alaska and is critical in determining land ownership boundaries along tidally influenced water bodies.

Communications

Electronic communication in Alaska is heavily dependent on sophisticated technology due to the lack of conventional land lines between Alaskan communities and the tendency for high-frequency radio communication to be disrupted by solar flares or "sunspots." Microwave transmission, satellite relay, and UHF radio repeater systems are in daily use along with a relative newcomer to communications technology: meteor-burst transmission.

The meteor-burst system is computer-driven and bounces radio signals off of ionized atmospheric trails caused by meteors falling into the atmosphere. The meteor trails are of

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G.I.S. - Pushing The Ragged Edge



Page Spencer

Computer technology within BLM has skyrocketed during the last few years. The Geoprocessing Section of ASO's Branch of Photogrammetry uses Landsat images to develop resource data bases using computer-aided techniques. Resource information taken from the satellite data helps BLM land managers develop land management plans. For example, a BLM manager may be required to do a resource management plan for a 10,000 acre planning unit. Scattered parts of the planning area are feasible for oil and gas leasing, one-third is excellent moose habitat, approximately half of the area is important for waterfowl nesting, recreational use is heavy throughout the lands, and the northern third contains many mining operations.

How are you as a BLM land manager going to manage this land to balance everyone's desires? You may not be able to make everyone happy, but you want to be sure you come up with the best alternative. If you have a Geographic Information System (GIS) data base, you can sit down at a computer terminal and determine the best alternative on the computer screen by comparing various scenarios.

A GIS is simply a system for storing multiple layers of data and manipulating selected features from the various layers for a variety of applications.

A GIS is simply a system for storing multiple layers of resource data and manipulating selected features from the various layers for a variety of applications. These systems are usually based on computers and digital data. Geo-referenced data is recorded according to a location on the earth's surface. Most maps are examples of geo-referenced data. Geographic information systems generally have multiple sets of data over the same geographic area. The actual process is very similar to the time-honored procedure of overlaying acetate maps

and interpreting polygons based on the map data. A GIS does basically the same thing using a computer to make the repetitive data sorts and computations while freeing the resource specialist for the more creative work of interpreting the results.

A geographic information system can provide great flexibility in the manipulation and display of a few basic data types for a wide variety of interpretations.

A geographic information system can provide great flexibility in the manipulation and display of a few basic data types for a wide variety of interpretations. Some examples of input data are terrain data, such as elevation, slope and aspect; soil types; landcover; hydrology; administrative boundaries and ownership; transportation corridors; and networks or wells. These data can be manipulated in many ways and can be output as maps or models. Updating the data base is fairly simple.

A geographic information system can be used by resource specialists and planners to retrieve, spatially analyze, and display any map data stored in the system. An example of this type of use is a wildlife habitat application in a management unit which is characterized by a vegetation type on a certain aspect and slope steepness range. For example, moose winter browse on gentle south-facing slopes. The results of this type of interactive analysis are: (1) management unit maps showing areas with common characteristics and (2) tables listing the acres and percentage of the management unit having the selected characteristics. With a little imagination many more applications can be identified. The GIS can provide a means of evaluating an action before it is implemented and comparing alternatives.

One of the major data sources for a GIS is landcover or vegetation data derived from Landsat data. Landsat is a resource data satellite that orbits the earth collecting data about the light which is reflected back from the earth's surface. The satellite collects data over the entire earth's surface every 18 days. The data are recorded by the satellite orbiting at 500 miles above the earth and transmitted to receiving stations on earth where the data are recorded on computer tapes. These tapes are used by the computers to create the Landsat images. Landsat data can be

interpreted using computer-aided technology to create digital data layers or interpreted manually. Landsat data are interpreted for many applications including landcover inventories and special interest inventories such as forests or range lands. It is very useful for monitoring features that change over time such as fires, river breakup, sea ice movements, glacier advances and retreats, and hydrological cycles. These data are also used to interpret geological features such as geomorphology, fault zones, bedrock, and surficial deposits. In one case the satellite data were interpreted to indicate when the Soviets launched a missile from under the ice north of Siberia.

BLM has been a front-runner in developing and using Landsat and geoprocessing techniques in Alaska.

BLM has been a front-runner in developing and using Landsat and geoprocessing techniques in Alaska. The effort began with the launch of the Landsat satellite system by NASA. At the time the first Landsat was launched in 1972 to collect data about the earth's resources, scientists at NASA were not sure what information could be derived from the Landsat data. BLM-Alaska became involved in the program in 1975, at a time when there was very little in remote sensing in the government sector. The Denali ASVT Project was the first project for which Landsat was used by BLM-Alaska. Questions addressed by the Denali Project were: (1) What can remote sensing data do for BLM? (2) What level of detail can we get? and (3) What will it cost BLM? It was a learning experience but a successful one which led to other projects such as Nulato Hills, NPR-A, and Kvichak.

Ecologist Page Spencer, chief of the Geoprocessing Section, says, "The use of remote sensor data and geoprocessing technology is really exciting! It's a whole new concept that has opened up a new way to see the world. It is similar to when the microscope was first invented, and for the first time we could see things not visible to the naked eye. Now we can see 115 square mile areas where data was collected in just 26 seconds." Spencer is a plant ecologist who has been working Landsat data and geoprocessing since 1973. She attended the University of Alaska in Fairbanks to study applied plant

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ecology using remote sensing data. "What really makes it fun," says Spencer, "is that I can take all the theories I learned as an ecologist and directly apply them with a new tool."

In Alaska, the scientific community using Landsat and geoprocessing has blossomed.

In Alaska, the scientific community using Landsat and geoprocessing has blossomed. The lack of base line data, large areas with little access, and the legislative mandates of recent years made Alaska the ideal location to create and use computer data bases. Using remote sensing data allows the resource specialist to cost effectively gather data over large areas. Field work is conducted on a representative subsample of the study area, and the computer extrapolates the information to the large area. If a specialist had to go over every portion of the land on foot or by helicopter, it would cost about \$1.50 per acre. Using a combination of field samples and computer analysis, the cost for comparable work is approximately three cents per acre. These data are included in a computer data base with other data layers and manipulated using a GIS. According to Spencer, "If a manager wants to have a data base set up for a certain area, it takes about 18 months to create the original data base. Once the data base is set up, the manager can do all kinds of conflict analysis studies. It's a great tool for up-front planning and day-to-day management. You don't have the final scenario the first time. You can try a few things and compare your alternatives."

"New ways to use the Landsat information and data are constantly being explored. We are pushing at the ragged edge of technology."

Page Spencer

"New ways to use the Landsat information and data are constantly being explored. We are trying to get the job done at a lower cost, in less time, and with better quality. The sky is the limit as to the possibilities for the technology. With the diversity of people in our office and the fresh minds looking at problems, new ideas are constantly being tried. We are pushing at the ragged edge of this technology everywhere we can by constantly expanding the applications and possibilities."



A Landsat image of Mt. McKinley. The digital information from this image was used to create the front cover.

"Help people reach their full potential; catch them doing something right!"

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very short duration and portions of a message are bounced from a succession of trails in short bursts until the complete message has been successfully transmitted.

Office Automation

A fourth category of technological innovation and one which is receiving increasing attention by the BLM is defined as office automation. For example, computerized "word-processing" systems are replacing the conventional typewriter, electronic mail is being used to supplement the postal service for priority traffic, and utility programs make it practical to use the office computer for budget preparation and monitoring. Office systems are being used to prepare and maintain telephone directories, mailing lists, and other "cuff record" lists. Pie charts, bar graphs, and other presentation aids can easily be prepared.

Computer technology has taken a strong foothold in BLM-Alaska. These new innovative systems are helping BLMers get the job done more efficiently and effectively.

Communications Technology

by Ed Bovy

Situation 1: Your survey crew needs more gasoline, food and supplies.

Situation 2: Lightning has started a fire and it looks like it is going to go out of control.

Situation 3: A man on a survey crew has had a serious accident and needs to get to a hospital.

Problem: The nearest telephone is one thousand miles away. What do you do?

Solution: Send a message to Anchorage by way of a meteor!

This solution is not science fiction but science fact. The above situations are examples of just three uses of a relatively new communications technology that BLM Alaska is using to help manage public lands. And in a state with the dimensions of Alaska, communication is complicated by a variety of unusual factors.

Alaska is a land of contrasts. Covering 565,000 square miles, it is the largest state (more than twice the size of Texas!) in the Union, but it is also the smallest state if measured by population. Population density is .74 people per square mile, but even this figure is misleading because most of the population lives in a few large cities. The Anchorage area alone accounts for about 42 percent of the state's population. There are few roads; most access to the vast expanses of federal land must be by airplane. The long Alaskan winters and limited daylight conditions are famous. Summer field seasons generally average from late May to late September. All this is to say that resource data collection for any purpose is difficult, expensive, and time consuming.

These factors led a number of agencies in data collection and resource management to pool their expertise and funding to develop a communications system suitable for environmental data monitoring and point-to-point communications in Alaska.

The six agencies involved include the Bureau of Land Management, Weather Service, Soil Conservation Service, Geological Survey, Army Cold Region

Research and Engineering Labs, and Army Corps of Engineers.

A commercial meteor burst system, pioneered by Western Union, was chosen as the system which had the best possibility to meet Alaska's needs. Design specifications were developed by a joint study committee, actual manufacture of the prototype units was done by private companies.

Although the possibilities of meteor-related communications were first recognized as long ago as 1951, recent advances in computer technology have allowed for the rapid development of a practical system at a reasonable cost.

Although the possibilities of meteor-relayed communications were first recognized as long ago as 1951, recent advances in computer technology have allowed for the rapid development of a practical system at a reasonable cost. A Boeing prototype system was tested in 1975 and became fully operational in July 1978.

Most people think of meteors when they see occasional "shooting stars." In reality the earth is being constantly bombarded with up to eight billion meteors a day.

Most people think of meteors when they see occasional "shooting stars." In reality the earth is being constantly bombarded with up to eight billion meteors a day. Most of these are quite small; meteors as small as 1/32 inch in diameter can be used in meteor burst communication.

As a meteor is vaporized upon entering the earth's atmosphere, a trail of ionized gasses forms behind it. This trail is then used as a "space antenna." The meteor zone where this occurs is approximately 50 to 70 miles above the earth.

The Anchorage base station sends a nondirectional signal (probe) to the atmosphere where it is reflected back to earth in a "footprint" (i.e., an area approximately five miles by 25 miles over distances up to 1200 miles away). If a remote station is in the area, it can be activated by a recognizable access code to respond with data that have been held in storage awaiting transmission. One base station can manage approximately 500 remote stations.

Since the connection between base and remote stations lasts less than one

second, the data must be condensed into 16 character segments called "bursts" to permit transmission in the available time. The major application of meteor burst technology in BLM's Alaska program is in the Cadastral Survey Division.

The major application of meteor burst technology in BLM's Alaska program is in the Cadastral Survey Division.

With the passage of the Alaska Native Claims Settlement Act (ANCSA) in 1971 and the Alaska National Interest Lands Conservation Act in 1980, Alaska is in effect being subdivided in a massive land conveyance program. At the time of statehood in 1959, 99 percent of Alaska's 367 million acres was in federal ownership. After all claims are settled, 59 percent (217 million acres) will be federal land. Approximately 28 percent (104 million acres) will be state land, and 12 percent (45 million acres) will belong to Natives and Native corporations.

Field surveys, marking precise boundaries on the ground and on detailed maps, are a key element in the land conveyance process; a valid survey must be completed before the land transfer is considered complete (i.e., patented). Legislation requires that the federal government pay for the necessary surveys. The acreage involved is overwhelming!

To accomplish this mission, BLM has established a survey program with both in-house and contract survey crews. BLM's cadastral survey program is a \$10 million a year operation.

Survey base camps are established each summer throughout the entire state. This past summer was typical; crews were stationed near the Arctic coast, the Bering Sea, near the Canadian border, throughout the interior, and in the panhandle region. Camps are supplied by air from Anchorage, Fairbanks, or other smaller cities depending on location. These camps can change location several times a year and must be able to operate in remote, isolated areas that have no existing communications systems nearby.

The meteor burst system is ideal for these conditions; it is small, portable, independent of other users, simple to operate, and can transmit a variety of messages on an as-needed basis. It is a key component of the survey camp operations. All that is needed in the field

Technology Is Sky High In Alaska

is a portable antenna, a keyboard the size of a small typewriter, and the receiver/transmitter.

Another application of the meteor burst system is found in the BLM fire program. BLM is planning to establish more than 40 remote weather stations and five communication sites as part of the Automated Initial Attack Management System (AIAMS).

Another application of the meteor burst system is found in the BLM fire program. BLM is planning to establish more than 40 remote weather stations and five communication sites as part of the Automated Initial Attack Management System (AIAMS). These stations will sample climatological factors such as wind speed, direction, temperature, humidity, and rainfall and relay them back to a fire control center. This information will be combined with previously gathered information and computer analyzed to predict the likelihood for fuel ignition from lightning strikes.

Fire crews will be pre-positioned to forward base camps when there is a high likelihood of fire occurrence. This will cut down on response time if a fire occurs. As the danger passes, the crews can be moved to other potential danger points or returned to their home base.

Up-to-the-minute environmental data from the remote stations can also be used to predict fire behavior and aid in the suppression efforts.

The Soil Conservation Service (SCS) has had a long history of providing data taken from snow surveys for use by agriculture, industry and municipalities, to name a few. In years past predictions for spring runoff and water supplies were made with a limited sample of snowpack moisture content readings, all obtained in the field by teams who travelled into remote survey sites up to four times a year to take the snowcourse readings. As the importance of these predictions increased (witness the massive flooding in the west the past two summers), the number of monitoring stations increased as user groups demanded more accurate and frequent forecasts. One of SCS's responses to this need incorporated meteor burst technology to tie in remote sites to base stations in operation SNOTEL, which began in 1978. There are now more than 500 SNOTEL sites in operation, and

additional stations are likely to be established in the future.

SCS has approximately 200 field sites in Alaska. Of these, 32 store information on a recorder for future retrieval in the field. Data from 12 stations in remote, isolated areas are radio telemetered with meteor burst technology on a continuous basis.

The best example of a practical application of near-instantaneous readings is illustrated by the use of monitoring stations high in the mountains on the Kenai Peninsula. The Alaska Highway Department needed current information to determine avalanche conditions along a major state highway. Early each morning road crews get a string of readings taken during the night by the remote stations and transmitted directly to their offices. This information is essential for the control measures.

Picture the circumstances: It is dark and cold, and there is little snow on the highway. But high up above, fresh snow that fell during the night is unstable. Wind speed and direction data indicate that cornices are probably forming; avalanche conditions are just right. The crew decides not to wait for a slide to hit an unsuspecting motorist and takes a portable 105 mm recoilless rifle to a permanently mounted platform at an established control point. The predetermined coordinates allow for an accurate "shot in the dark" to trigger the avalanche while the road is closed. Crews then remove any snow that reaches the highway.

Meteor burst technology plays a key part in saving both lives and tax dollars.

Meteor burst technology plays a key part in saving both lives and tax dollars. The Corps of Engineers is using meteor burst technology in combination with remote weather stations and stream gauges in the Chena River basin near Fairbanks. Data on precipitation, snowpack, and river flow, as well as other information, is used to warn of potentially hazardous flood situations and to allow for countermeasures to be applied in time.

The Corps is also gathering data in remote areas in southwest Alaska such as Homer, Kodiak, and Akutan to aid in future harbor design. Buoys are anchored in key locations to monitor weather patterns, wave height and frequency, and currents. The information is stored and later sent to

Anchorage on a regular basis. From three to five years of data is necessary to aid in the design process to assure that the future facilities are built in the best location and are able to withstand the severe climate. The ability to collect the vast amount of information needed to do this with a minimum human presence is an obvious cost savings.

BLM and the other federal agencies in the meteor burst program in Alaska have played a major role in accelerating the development of current technology.

BLM and the other federal agencies in the meteor burst program in Alaska have played a major role in accelerating the development of current technology.

New applications for this system will undoubtedly be found as the system is further refined and publicized. As with other high technology efforts, costs are decreasing and quality is improving. For example, costs for remote units have dropped from \$5,700 to \$3,000 in just six years; and the newer models are smaller in size and can actually select meteors so as to improve signal reception at the remote stations. Costs will continue to decrease as technology makes further advances and more competition enters the field.

Data needs for resource management will increase in complexity, but resource management budgets probably will not maintain the level of funding necessary to do the job, forcing resource management professionals to find the most cost-effective method of getting the data needed. Meteor burst technology will be a major consideration.

Private enterprise is beginning to enter the field. There is at least one company in Alaska that can install and service a system for a user on a temporary or lease basis; data from remote stations can be relayed to an office computer anywhere in Anchorage.

There is no doubt that meteor burst technology will continue to fill an important communications niche in Alaska and elsewhere. It provides services that other communication systems, such as satellites, telephones, and microwaves cannot perform as effectively.

Mapping The Last Frontier

Alaska's vast, remote areas prompt BLMers to use a wide variety of maps to get their work done. ASO's Mapping Section in the Branch of Photogrammetry uses expertise and state-of-the-art equipment to provide these specialized mapping services. Many of the maps produced in BLM-Alaska were created with the help of highly technical computer equipment. The collection, interpretation, and manipulation of data results in map products such as rectified/orthophotos; thematic, contour and planimetric maps; and/or tabular listings, such as acreage.

According to Mapping Section Chief, Paula V. Krebs, "The rectified/orthophotos combined with a land net grid showing township and section lines is one of the most frequently requested products." A rectified/orthophoto is a corrected image on which the distortion caused by terrain and airplane position has been removed. You can measure distance and acreages on a rectified/orthophoto in the same way you do on a U.S.G.S. map. The rectified/orthophotos, which are at a scale of 1:31,680 (two miles to the inch), are used by the field surveyor to aid in finding a location when doing the rectangular survey; by the biologist/photointerpreter to determine

meander lines for rectangular survey plats; by the realty specialist for finding the location of a Native allotment during the field exam and easements and rights-of-way review; and they are used by the resource specialist for special projects.

The resource areas identify 200-300 townships per year for which they need rectified/orthophotos. The realty specialist uses the rectified/orthophotos when visiting a parcel of land with the applicant. The annotated photo later becomes a reference tool for the cadastral survey field crews when the parcel is ready to be surveyed.

The Division of Cadastral Survey and the Branch of Photogrammetry work closely together to coordinate cadastral's many mapping needs. Cadastral requests rectified/orthophotos for 100-300 townships yearly. This increased use of specialized maps has created a two- to three-year workload for the mapping program.

Cadastral Survey has also requested meander line data be generated for 1,907 townships. This is done by interpreting the land/water boundary on air photos. A surveyor and a biologist/photointerpreter go out in the field to verify the photointerpretation in conjunction with guidelines from the Manual of Survey Instructions from

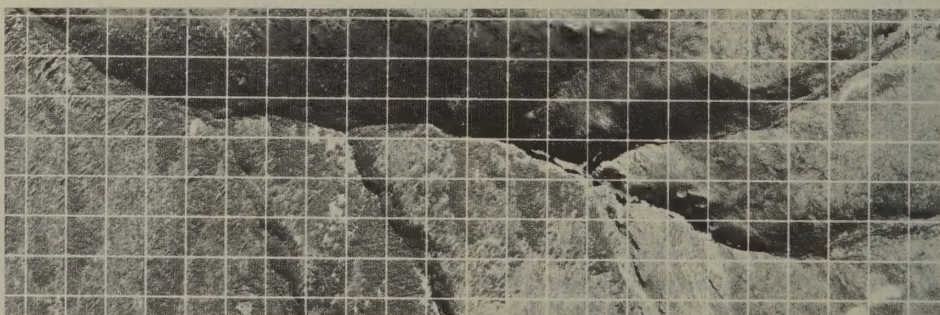
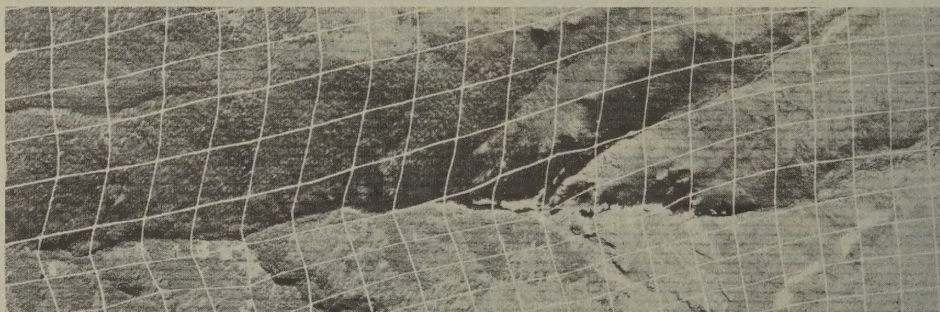
Cadastral Survey. The photointerpreted meander line (land/water boundary) data, which is overlaid on the rectified/orthophoto base, is combined with the data obtained in the field to plan field surveys and make navigability determinations. These data are used for rectangular survey plats.

The Mapping Section also receives many requests for special projects, such as for orthophotos for the Slana settlement area near Glennallen. This request originated from a realty specialist at the Glennallen office who felt a photographic map was needed to help resolve land claim conflicts among Slana applicants. The orthophotos have been used extensively by ADO and the Glennallen office to help identify lands in the Slana area and to resolve conflicts.

Dr. Paula Krebs has been chief of the Mapping Section since 1981. Prior to coming to BLM, Krebs worked as an assistant professor at the University of Colorado and the University of Alaska where she concentrated her research on the development and implementation of remote sensing technology for resource management. While at BLM she has worked toward applying remote sensing technology to BLM's resource management needs and meeting BLM mapping requirements.



Paula Krebs



(top) An original aerial photo which has distortion due to terrain.

(bottom) An orthophoto of the same area which has been geometrically corrected using data from the analytical stereo plotter.

Fire Qualification System Comes On Line

by Sharon Wilson and Merrie Johnson

Amid walls filled with charts, calendars, and schedules and with desks and floors covered with boxes of paperwork and course materials, the staff of the Branch of Fire Training at the Alaska Fire Service continues the breakneck pace of spring training, beginning in April and ending in late May. In addition to coordinating, supporting, and teaching more than 30 courses, this eight-person unit has entered the implementation phase of the new Fire Qualification System throughout Alaska.

Tracking the extensive job experience and training for fire personnel has always been an uphill battle. Somehow there has never been adequate time and staff to accurately compile the records of the hundreds of people involved in the fire management program each fire season. The improved Fire Qualification System (FQS) will be the primary means for systematically recording that data and will also provide agency management with accurate, usable information that is necessary for planning and decision-making.

This computerized system is based on the National Interagency Fire Qualification System that resides in a U.S. Forest Service computer in Fort Collins, Colo. The system not only records fire training and experience but also determines an individual's fire job qualification level under the Large Fire Organization. This evaluative process is the key to assuring that fire management personnel have met the national standards to perform the on-fire positions.

A locally established certification process makes sure that individuals qualifying "on the computer" are indeed able to perform in the intense, often life-threatening environment of a forest fire anywhere in the United States and Canada. This certification process produces the Red Card, carried by every qualified firefighter, which identifies his or her qualification level.

BLM in Alaska began improving on these basic, national programs approximately six years ago with goals of providing less-complicated data entry procedures and editing capabilities, thereby obtaining more usable products. The system has made major advances through the years, with more to come.

"The summer of 1984 was a landmark," says AFS Training Administrator Merrie Johnson. "Sub-unit account managers from Fairbanks

and Anchorage began entering data directly into the Fort Collins Honeywell computer, allowing personnel from the field level to enter and receive information at any time. Due to the extensive editing capabilities built into the screen entry programs, data sent to Fort Collins was virtually error free. Designed for fire personnel with no computer background, the system is easy to use."

This past winter Johnson spent four months at ASO working with GSA contract programmers converting the programs in the Forest Service computer to the Honeywell Level 6.

"The exciting part of this is that we can now run the program to update files and print reports almost any time we need them; and we can also make program modifications to this somewhat antiquated system right here in Alaska," commented Johnson.

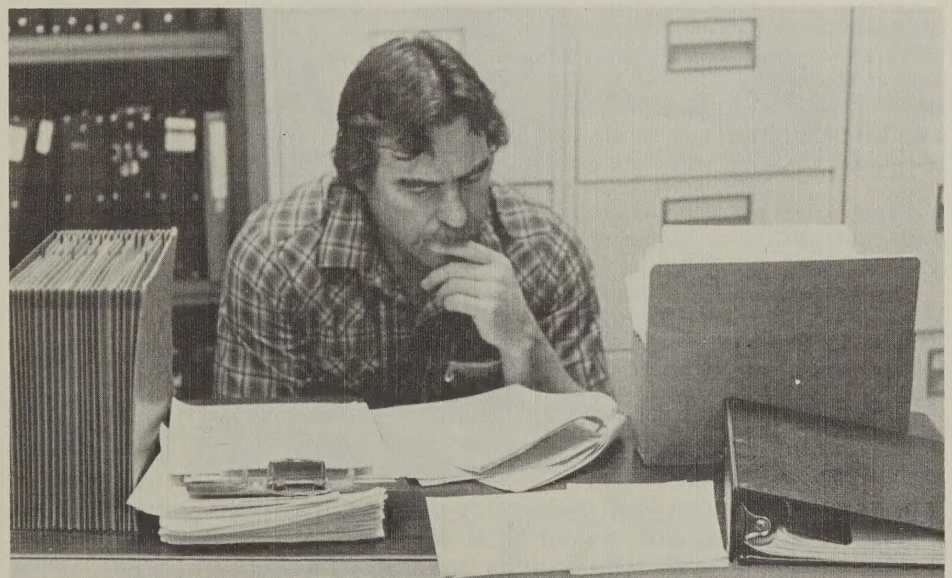
"One new feature that is to everyone's advantage," explained Johnson, "is the ACCUMS Program. At any time an employee can get a printout of the fires and training he or she completed that year."

Major program changes to convert all records and programs to the new Incident Command System are already scheduled for this July. The ICS is the operational part of the National Interagency Incident Management System (NIIMS). Under this new concept personnel will be trained to

manage any incident, such as earthquake, flood, or forest fire. "Once this adaptatin has been completed, Alaska will have the first on-line computer system in the nation that will perform the qualification evaluations in addition to tracking experience and training. We'll send Boise Interagency Fire Center the software as soon as it's completed; BIFC and other agencies may well start using our system."

In the meantime the Branch of Fire Training will be fitting a training session into their already busy schedule to acquaint sub-unit managers with the updated version of the FQS. In addition to the Alaska Fire Service and other BLM personnel in the system, the State of Alaska has begun entering data for its fire personnel. As of April 1, there were 5,541 individuals in the system, with the large majority being members of Native village crews spread throughout the state.

Computer systems have long been touted as information banks that will save time and effort and increase accuracy for almost any operation. In this case the system will not only benefit the individual, but it will also assist fire management staff. A major benefit will be the assurance to the managers that only people fully qualified by national and Alaska region standards are out there doing fire jobs--an assurance that is entirely welcome in Alaska Fire Service.



Cook foreman Steve Roach mulls over the applications of candidates applying for summer mess hall jobs.

Employee Conduct

by Stephanie Schmidt

Several recent occurrences of misconduct prompted this article as a reminder to all of the potential problem areas in an effort to prevent future occurrences.

Misconduct has adverse consequences; and each employee is subject to discipline, without regard to grade level or position.

As employees, you are responsible for your actions. Reviewing the regulations and asking before acting can save a lot of trouble and misunderstanding. Some of the more common problem areas are:

1. Sales on the premises.

Employees may not solicit other employees to buy products or services on federal property or on federal time. Such private entrepreneuring should be done after hours.

2. Use of telephone for personal business.

The office phones are to be used strictly for official business. Unauthorized use may result in employees having to pay the bill and being subject to further adverse action, including suspension or removal.

3. Misuse of government vehicles. The use of government vehicles is limited to the minimum time required to conduct official business. The minimum penalty is mandated by statute to be a 30-day suspension. More serious violations can result in removal. It is important that each driver review the rules of use before getting behind the wheel.

4. Drugs and Intoxicants. The use of drugs, alcohol, and other intoxicants is prohibited both while on duty and when off duty if still on federal premises.

5. Safety. Violation of safety rules is serious, and violations which endanger life or property subject the offender to removal.

6. Sexual harrassment, discrimination, and violations of an employee's constitutional rights can result in severe discipline.

In addition, the conflict of interest statutes prohibit a federal employee from having a direct or indirect financial interest that conflicts, or **appears** to conflict, with official duties. Certain stocks, an active real estate license, and interest in federal lands are also prohibited.

These rules are published in 43 CFR, Parts 7 and 20 and Chapter 735 of Federal Personnel Manuals and are elaborated upon in other manuals and memoranda. If you have any questions or need clarification, please contact Jim Pooley at 271-3171.

Your Official Personnel Folder

by Sheila Brown

Your Official Personnel Folder (OPF) is the repository of the records and reports of personnel actions effected during your federal service. The folder "travels" with you throughout your entire federal career. When you are separated from federal service, the folder is transferred to the National Personnel Records Center and becomes part of the central file of former federal employees.

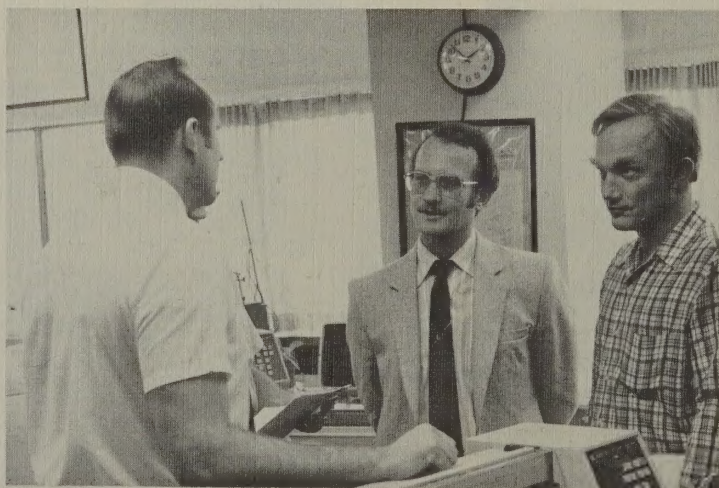
Records in the folder are maintained and used by the Branch of Personnel in screening qualifications; determining status, eligibility, and employee rights and benefits under pertinent laws and regulations governing federal employment; computing length of service, and for other information needed in providing personnel services.

The OPF consists of two parts. The right side contains permanent records affecting your status and service. Some examples of the designated permanent material are applications, Notifications of Personnel Actions (SF-50), life and health insurance coverages, Designation of Beneficiary forms, appointment affidavits, training forms, awards, certificates of appreciation, etc.

The left side of the OPF contains papers which are considered of temporary value, such as position descriptions, Requests for Personnel Action (SF-52), letters of appreciation, etc.

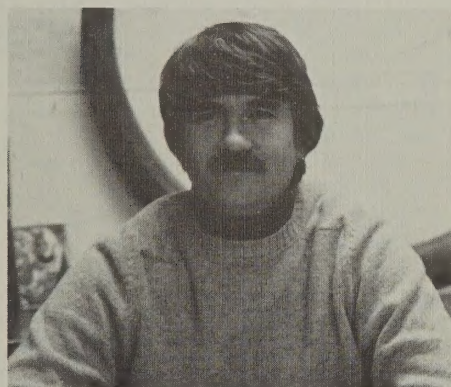
Although it seldom happens, OPFs do get lost and/or destroyed. Reconstruction of an OPF can be done with minimum difficulty if you have kept your copy of personnel action documents. Therefore, we encourage you to keep a folder of pertinent data (e.g., Standard Forms 50, "Notification of Personnel Action," Standard Form 171, "Personnel Qualification Statement," etc.).

Your Official Personnel Folder is available for your review in the Branch of Personnel if you are a permanent employee. OPFs for temporary employees are kept at the District or State Office (ask your supervisor where yours is).



The Chief of Surveying and Mapping for Queensland, Australia, Grahamn Rush, recently toured BLM Alaska's Cadastral Survey Program. Rush, who is on an exchange with a local engineering firm, is in Alaska to learn about U.S. surveying methods. According to Rush, Australia still has lots of surveying to do, primarily because the Australian government doesn't pass title to any land until it has been surveyed. (left to right: Don Knight, Grahamn Rush, John Roberts)

Alaska BLM's Special Agent



Dean Crabbs

Dean Crabbs is BLM's Special Agent. "My job is to assist BLM's managers in getting the job done by providing a program aimed at the protection of public resources and the prevention of unauthorized use and/or criminal activity." He is the only BLM employee in Alaska with delegated law enforcement authority, which means he can make arrests, serve search warrants, seize evidence, and issue citations. If and when a situation develops criminal potential or a BLM employee's personal safety is threatened, Crabbs steps in to assist.

Crabbs says, "My duties are quite varied. I consider myself a clearinghouse for all law enforcement activities for BLM in Alaska." He investigates the theft of BLM equipment, theft and destruction of public resources, assaults on BLM personnel while they are on official duty, and coordinates BLM's activities with local, state, and federal law enforcement agencies. During the last year he has actively participated in nationwide investigations into fraudulent activities involving the leasing of oil and gas rights on BLM lands. Trespass, however, remains the most persistent problem. Some of the cases involve people living on public lands without authorization; others are mining related. Crabbs has recently been active in helping to implement special use regulations on the Fortymile Wild and Scenic River. The regulations were designed to help protect the quality of the river and at the same time allow

miners to work their suction dredge claims in the riverbeds.

Originally from Ohio, Crabbs graduated from the University of Michigan with a degree in Wildlife Management. He worked for three years as a park ranger for the National Park Service, after which he spent four years as a security police officer in the Air Force.

After the military he worked as an FBI agent for the next 12 years. "As an FBI agent I investigated everything from stolen cars to extortion, bank robbery, and kidnapping. However, the majority of my time was spent working political corruption and white collar crime.

"For many years I have wanted to live in Alaska. At the time this job opened up, the FBI was considering transferring me to a major metropolitan area. I did not want to work in a big city, and the chance to come to Alaska was a welcome opportunity.

"In the two and a half years that I have been with BLM, I have traveled from Wrangel to Prudhoe Bay and from Eagle to Bethel," says Crabbs.

Crabbs lives in Wasilla with his wife and two sons. His wife Cathie teaches junior high school. "We love Alaska, and we're here to stay," he says.

Personal Notes

Congratulations to Alaska BLMers **Dan Gullickson** and **Ben Fish**. Both were winners in this year's BLM Photo Contest. Gullickson placed first in the "BLM Employees at Work" (B&W) and the "Public Use of the Land" (color) categories. Fish placed third in the "Public Use of the Land" (color) category.

FDO's **Sharon Hamson** of Procurement and **Bill Baker**, who is a carpenter for the Branch of Engineering, tied the knot on Valentine's Day. They met while he was painting her office last year.

Joe Adams, son of **Ann Adams** of ASO's Division of Conveyance Management, is playing in the Texas regional pro bowling tour this spring. On January 23 at the World of Sports in San Antonio, Texas, Adams had a strike on his first ball in the 10th frame resulting in his first sanctioned 300 game. Adams, who graduated from West High School in Anchorage, has a composite average of 215 in three leagues. He picked up the nickname "257" because of bowling that score more than 30 times.

When inspiration strikes **Nancy Jones**, Peninsula Resource Area's secretary, she capitalizes on it. Nancy's response to a KHAR radio contest for St. Patrick's Day limericks won her a set of Irish dessert dishes, a family portrait, and a cassette of bagpipe music.

Nancy, who was born in Scotland, accepted the Irish china graciously even though it has the Irish emblem on it instead of the Scottish one.

"I knew her when..." That's what the gang at ADO was saying on March 19 as Libby Riddles crossed the finish line to win the Iditarod Sled Dog Race and earn a place in the history books as the race's first woman champion.

Riddles was employed at the district office in the late 1970s as a seasonal security guard. Her distinctive country speech and quiet manner are remembered by those who worked in support of the fire control program. After two summers with BLM Libby moved out to the Bush to experience a different lifestyle.

Lights. Camera. Action. Those all too familiar Hollywood terms were heard on the Anchorage District Office compound last month when Cannon Films staged a scene for a feature length film there. The film company is in Alaska to film much of the scenery and background for "Runaway Train" starring Jon Voight and Karen Allen.

The scene, filmed behind the district office, features a fast action getaway by two of the movie's characters to a waiting helicopter.

Peninsula Resource Area staff issued the special-use permit and charged \$100 for use of the area.

Glennallen Resource Area Manager **Kurt Kotter** turned professor for a day recently at the Prince William Sound Community College. Kotter and several other agency personnel are teaching a course at the college on federal management.

"Each agency takes a turn explaining its philosophy and mission and discusses some of the laws used to manage federal lands," says Kotter.

The course is just one of several interagency efforts Kotter has helped to initiate in the Copper River Basin to educate residents about BLM and other Interior agencies.

"Often we will find that people really don't understand the difference between BLM and the Park Service or some other agency," he says. "We hope this will increase public awareness of our separate identities and roles."

ACCOLADES

QUALITY STEP INCREASE

Charlotte Pickering, Land Law Examiner,
ASO Division of Conveyance
Management
Albert Kayser, Land Surveyor, ASO
Division of Cadastral Survey
Thomas Wohlwend, Geodesist, ASO
Division of Cadastral Survey

SPECIAL ACT AWARD

Suzanne McWilliams, Land Law
Examiner, ASO Division of
Conveyance Management

SUSTAINED SUPERIOR PERFORMANCE AWARD

Richard Oelke, Land Surveyor, ASO
Division of Cadastral Survey
Peggy Lucas, Procurement Clerk,
Fairbanks District Office

WELCOME ABOARD (March 1985)

Kim Hoy, Mail & File Clerk, FDO
Linda Walde, Secretary, ASO Division
of Conveyance Management
Brenda Felchlin, Clerk Typist, ASO
Division of Cadastral Survey
Barbara Quatermass, Clerk Typist, ASO
Division of Administration
Stephen Roach, Cook Foreman, AFS
Terry Hobbs, Cartographic Technician,
ASO Division of Operations
George Casteel, Maintenance Worker,
FDO
Susan Swartz, Secretary, AFS
Carolyn Petersen, Secretary, ASO
Division of Administration
Geoffrey Gross, Forestry Technician,
ADO
William Hopster, Support Services
Supervisor, ADO
Debra Zell, Clerical Assistant, ADO
Janice Hopster, Legal Clerk, ADO
Sandra Cannon, Clerk Typist, ADO

MOVING ON (March 1985)

Robert Stephenson, Electronic
Technician, ASO Division of
Operations (Retired)
Sharon Patten, Clerk Typist, ASO
Division of Operations
Kenneth Short, Student Trainee (Land
Surveyor), ASO Division of
Cadastral Survey
Ronald Lund, Forestry Technician
(Smokejumper), AFS
Sarah Crossman, Staffing Clerk, ASO
Division of Administration
Donna Timmons, Clerk Typist, ASO
Division of Administration
Margo Hornback, Fire Support Assistant,
AFS
Darlin Mason, Property Management
Specialist, ASO Division of
Administration
Merryhelen Peissig, Clerk Typist, ADO
Willard Lowden, Forestry Technician
(Smokejumper), AFS
John Beck, Archaeologist, ADO
Peter Nilles, Supervisory General Supply
Specialist, ADO (Retired)
Donald Howell, Supervisory Computer
Specialist, ASO Division of
Operations (Retired)

THANK YOU! to the following
BLMers who recently donated blood to
the BLM Blood Bank Club:

Stephanie Schmidt
Thomas M. Deiling
James T. Meek
Richard Tandlich
Dee Wittenberg
Harold O. Wood, Jr.
Kathryn S. Tietz
Jane Miller
Beth Walton
Cheryl McCaffrey
Helen Hankins
Gary Casagrande
Pamela Chesla
Dorothy L. Hanley
Peter Nanok
Ray McDonald
Lori Fitzsimons
Charles A. Valentine

BLM "Lost" One Entire Person

by Dottie Liggett

On January 7, 32 ASO BLMers dug into their pockets, pitched \$320 into the pot, and officially weighed in for the weight loss contest dubbed "OPERATION NU-VIEW." After eight extremely difficult weeks of struggling with diets, food, no food, falling off, and getting back on, 17 "survivors" went the last mile for the great moment of truth--weigh in on March 5.

Blanche Tinius and Mary Hensel in the Health Unit weighed everyone in and out; and after a determination had been made as to who had lost the greatest percentage of body weight, the prize winners were announced:

First place: Ann Adams (Sealaska Section) lost 11.32% body weight and won \$200;

Second place: Bill Athas (Branch of Administrative Services) lost 10.76% body weight and won \$75;

Third place: Dottie Liggett (Sealaska Section) lost 8.7% body weight and won \$45.

Nell Alloway (Sealaska Section) would have one fourth place had there been one, so as a consolation prize, she took the interest accrued while the prize money was in the savings account.

Congratulations to all the winners and to those who didn't win the money but lost...however little!

Special thanks to Blanche and Mary for their participation in "OPERATION NU-VIEW." If interest is strong enough, we will do this again but not until next year. Once a year is enough!

A total of 156.25 lbs. was lost. It may not sound like much; but think about it, BLM "lost" one entire person.

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